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Upon the analysis and composition of soils, Mr Brande has extracted largely from sir H. Davy's Elements of agricultural chemistry. This is a subject of great importance to the practical agriculturist, and is, we are happy to observe, attracting the attention of gentlemen in this country. An examination of the geological structure of any district of country, will be found of essential advantage in promoting the most efficient methods of culture. In illustration of this remark we refer our readers to a valuable paper of Dr Paris, in the 1st Vol. of the Trans. of the Geolog. Soc. of Cornwall. 'The line of junction,' observes Dr Paris, 'between the granite and slate formations, may, in many parts, be traced by the eye alone, through tracts of cultivation, from the remarkable fertility which attends it. It may be defined a *zone of fertility*.' Mr Worgan in his view of the agriculture of Cornwall has also noticed a district of great fertility, at the junction of granite and slate. Again, Dr Paris tells us that he was requested by a friend 'to examine whether any geological arrangements could explain the cause of a particular line in his estate, being more fertile than the neighbouring lands; upon tracing the direction of the granite and slate formations, we soon discovered that this line of superior fertility was superincumbent upon the junction of these rocks.' During the summer of 1816 in a geological excursion around the peninsula of the Lizard, Dr Paris was accompanied 'by a very intelligent farmer of that district, who informed him that the *killas* (or clay slate) and *growan** lands as they came together were much improved in quality, and that they were mutually increased as much as one third in value; he also stated that the crops upon this "*rich vein*" were much earlier.'

ART. XXI.—*A geological and agricultural survey of Rensselaer county in the state of New York. Taken under the direction of the honorable Stephen Van Rensselaer.* Albany, 1822. pp. 70.

THE importance of geological and agricultural surveys, at which we have hinted in the preceding article, is beginning to be duly estimated in this country, and a most praiseworthy example has been given by Mr Van Rensselaer of New York,

* The provincial name for decomposed granite.

under whose patronage, an undertaking of this kind has just been completed by Mr Amos Eaton. Mr Eaton's labors we have had occasion to notice in a former number of this journal (Oct. 1820,) and we are happy to find, that the ardor, of which we then expressed our approbation, has not been repressed by the 'impudence' of 'ephemeral reviewers.' The objects to which the liberal patron of Mr Eaton appears to have directed his attention, have, we doubt not, been fully attained, as far as regards 'collecting materials for a kind of agricultural calendar, to direct the young and inexperienced farmer in regard to times of sowing, planting, &c. &c.' In this laborious undertaking, Mr Eaton tells us, he did 'not converse with every farmer in the county,' but 'called on one, at least, in every neighbourhood in all the towns, and wrote down in his presence, the methods of culture adopted by himself, and by his neighbours, as far as had come to his knowledge.' This method was evidently well calculated to collect a mass of valuable information, and to throw much light on the state of agriculture in the county. The result of these communications is given in a plain and familiar style.

The remarks of Dr Paris, to which we have alluded in the preceding article, would appear to hold good in respect to some parts of Rensselaer county. At page 23, Mr Eaton observes, that 'almost every farmer, whose land is situated on slate hills, has observed that his soils are yearly becoming deeper and better,' and that 'ten or twelve years ago several fields were chiefly made up of bare rocky (slaty) knolls. Now most of these knolls have become good arable land.'

Mr Eaton describes all the mountainous parts of this county as 'excellent for oats, barley, flax, potatoes, turnips, beets, and carrots. And every part of the county is very productive of either grass or clover.' He considers the soil of the Knickerbacker estate in Schaghticoke (is there no article in the amended constitution of New York, which gives the legislature the power to change names?) as the standard of excellence. It contains an average of fifteen per cent of animal and vegetable matter, and a large proportion of carbonate of lime.'

'The rotation method which has always been adopted by this family (they have occupied it one hundred and twenty years, and five generations have been born upon it) has been in the following simple order. Certain fields have been alternately devoted to

wheat and peas. Those fields are sowed to peas in April. Immediately after the peas are harvested, it is ploughed three times, and sowed, from the 10th to the 20th of September, to wheat. After the wheat harvest, it is pastured until winter; but no grass or clover seed is ever sown upon it, as these grow up spontaneously in great abundance. Sometimes oats and flax are substituted for peas. Thus a crop is harvested on each wheat field every year,—one year wheat, the other peas, oats or flax. Though no manure is ever applied to this land, it has yielded from twenty-five to thirty bushels of wheat per acre every other year for ages past.

‘Certain other fields are devoted to Indian corn, potatoes, &c. In the culture of these there has been nearly the same uniformity. 1st, Corn and potatoes; 2d, Spring-sown grain; 3d, Wheat. Thus corn returns every fourth year.

‘The whole of Schaghticoke flats, consisting of almost two thousand acres, is very similar in quality, and cultivated in a similar manner. It is wholly river alluvion, in which the Hosick and the Tomhanick unite their waters.’

Of the correctness of the geological part of this pamphlet, we are unable to judge, not having visited any of the localities to which it refers. We cannot but entertain the hope that the author has derived some improvement from the opportunities he has enjoyed of examining a considerable portion of the northern states. He appears still however, at times, somewhat unfortunate in his definitions, an instance of which will be found in a note at the bottom of page 12. He here informs us that the term *breccia* was applied by Werner to the old red sandstone, ‘because brittleness or friability is its most distinctive characteristic.’ Overlooking the distinction between *brittleness* and *friability*, we would inform Mr Eaton, that the term *breccia* was adopted from the Italian, and is applied to those rocks, which appear to be composed of fragments of other rocks cemented into a compact mass.

While we again express our sense of the value and importance of surveys of this kind, and of the benefits which Mr Van Rensselaer has conferred upon the country in affording them his countenance and patronage, and while we hope to see his patriotic example followed in every part of the United States, we must as freely confess that we do not place entire confidence in the geological speculations of Mr Eaton. Some of these, we apprehend, may admit of revision, while his judicious remarks, that ‘trees should not be too large when set out,’ that ‘March pigs killed about Christmas are the

most profitable pork,' and that 'pigs ought never to come till June,' will, no doubt, be allowed to constitute permanent and important improvements in the branches of agriculture and husbandry.

ART. XXII.—*An Arithmetic on the plan of Pestalozzi, with some Improvements.* By Warren Colburn. Boston: Cummings and Hilliard. 1821. pp. 143. 18mo.

WE shall make no apology for calling the attention of our readers to a subject of so humble a nature as elementary instruction in Arithmetic, but such as is contained in the great merit of the book before us.

Notwithstanding every thing that has been said and done of late, in reference to the subject of education, the modes of instruction are still very far behind the actual state of science, and none of them farther than those made use of in arithmetic. The books now almost universally used, and many of the notions which prevail, are of the same sort that were in use and prevailed, when young children were thought quite incapable of learning arithmetic. A notice of so rare a thing as a book on the subject, written by a man of talents, and perfectly adapted to its purpose, cannot be thought useless, while books are used in almost all our schools, suited neither to the comprehension of children, nor, if they could be comprehended, to the end for which they are designed.

The difficulties which, by the prevalent mode of teaching, are thrown in the way of the learner, are well noticed in the preface to this volume.

'The pupil, when he commences arithmetic, is presented with a set of *abstract* numbers, written with *figures*, and so large that he has not the least conception of them, even when expressed in *words*. From these he is expected to learn what the figures signify, and what is meant by addition, subtraction, multiplication, and division; and, at the same time, how to perform these operations with figures. The consequence is, that he learns only one of all these things, and that is, how to perform these operations on figures. He can perhaps translate the figures into words; but this is useless, since he does not understand the words themselves. Of the effect produced by the four fundamental operations he has not the least conception.'